Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

termine the species, but I confidently expect to find them identical with species from the Fort Pierre group, if not new. Furthermore, of the vertebrates that I know from these beds, all seem different from those of the beds below. One of them I have recently described as Clidastes westii, the most aberrant species in the genus.

Lithologically, the outcrops, which are not extensive, are all of a deep blue color, with numerous and large septaria, in which are found the large and beautiful crystals of baryte. The outcrop occurs at the extreme top of the Niobrara, on the North Fork of the Smoky Hill and in the vicinity of Fort Wallace. The first true Niobrara yellow chalk was observed near the mouth of the North Fork, at an elevation nearly 100 feet below the McAllaster outcrops.

In this connection, it will be of interest to observe that Hay has found "an outcrop in Norton county of two well-marked strata above the yellow chalk," consisting of green sand and green clay shale. (Sixth Bien. Rep. St. Bd. of Agric., p. 103.) Whether or not they belong to an upper cretaceous horizon remains to be shown.

NOTES ON THE ELEMENTARY COMPARATIVE EXTERNAL ANATOMY OF INSECTS.

[For use in entomological laboratory of the University of Kansas.]

BY VERNON L. KELLOGG, UNIVERSITY OF KANSAS, LAWRENCE.

A laboratory course in entomology of 20 weeks, 10 hours' work a week, is offered in the University as a junior or senior optional. Students electing this course have had a 20 weeks' course, 10 weeks of lectures and 10 weeks of laboratory work for 10 hours a week, in general zoölogy. The object of the course in entomology is to train the student in accurate work in anatomical detail, and to give him a knowledge of insect anatomy upon which further work in the comparative anatomy of insects or the determination of species may be based.

A very excellent laboratory guide for this course is that begun by Prof. J. H. Comstock, of Cornell University, and by him called (A Fragment of a) Guide to Practical Work in Elementary Entomology. This guide covers, in careful detail, the external anatomy of the common red-legged locust (*Caloptenus femur-rubrum* De Geer). As a continuation of similar work in external anatomy, I have prepared some laboratory notes (printed as a pamphlet of 12 octavo pages) entitled as at the head of this paper, and comprising anatomical notes on the following subjects: The head and thorax of the milkweed butterfly, *Danais archippus* Fabr.; the mouth parts of the honeybee, *Apis mellifica* Linn.; and the pleural sclerites of the rummaging ground beetle, *Calosoma scrutator* Fabr. The nomenclature of aspects and directions used is that adopted by Professor Comstock (after Professors Wilder and Gage, Cornell) in his "Guide."

In the "Notes" issue is taken with Burgess's statement (see his Contributions to the Anatomy of the Milkweed Butterfly, *Danais archippus* Fabr.) that the clypens of *archippus* "passes directly into the epicranium without any suture or line of demarcation." A suture extending between the antennary fossæ separating clypens from epicranium is plainly to be made out. The patagiæ of the thorax of *archippus* are found to be outgrowths of the meso-thoracic paraptera. The meta-thoracic paraptera are also described. The peculiar shape of the epicranium, accommodating itself to the overlarge compound eyes, is described, and the occiput, gula and labium are described, all of which are points untreated by Burgess.

The "Notes" are not illustrated, the student, as with the "Guide," making the required drawings solely from the specimen in hand. The insects chosen are common forms, easily obtainable anywhere in the United States.

INSECT NOTES.

BY VERNON L. KELLOGG, UNIVERSITY OF KANSAS, LAWRENCE.

It is hoped to present annually a few notes on Kansas insects, paying special attention to those of economic importance. As no such notes were presented last year, certain observations made in 1891 are included in the notes of this year.

WHEAT-STRAW WORM (*Isosoma tritici* Riley).

A considerable amount of injury to Kansas wheat accredited to the Hessian fly is really done by the wheat-straw worm. In 1891, this insect was reported from about one-fourth of the counties of the State, being especially prevalent in central and western Kansas. Adults issue in March and April from last year's wheat straws, either in stubble or volunteer or stack, and oviposit on the young winter wheat. The adults of this brood emerge in the latter part of May and early part of June. The eggs are laid in the now maturing wheat, and the larvæ pupate in the stubble or in the stack before winter. The larvæ usually lie just above the second node below the head. In a bunch of straws from Russell county, over 75 per cent. were infested. In these straws, 40 per cent. of the pupæ were found above the first node below the head, 50 per cent. above the second node, and 10 per cent. elsewhere. They lie in small, gnawed-out cells, and the heads are almost invariably directed up, *i. e.*, toward the head end of the straw. *Eupelmus allyni* proves an effective natural check to this pest, the parasitism being noticed in all examinations made. As but about 5 per cent. of the straw worm flies have wings, the pest does not spread rapidly, and local efforts in fighting it, by burning old stacks and stubble containing pupæ, in the winter or early spring, are very effective. A bulletin was issued by the department of entomology of the University, in February, this year, calling attention to the presence of this pest in the State, and recommending the burning of old straw stacks and stubble.

A NEW BIBIO (*Bibio tristis* n. s.)

A Bibionid fly appeared in large numbers in many Kansas wheat fields during the last week of April, this year. It was reported from seven western counties, viz., Geary, Saline, Lincoln, Ellsworth, Pratt, Rice, and Smith. Farmers in these counties were alarmed by the presence of swarms of these flies, though in no case was any special damage apparent in infested fields. The larvæ of the flies were found in large numbers in the soil of a Pratt county field on February 10. Some larvæ were found also in hotbeds in which various flowers were growing. Adults were first reported on April 17, and from then constantly until the end of the first week in May. A correspondent in Lincoln county noted that pupation began about April 20, the adult flies appearing by April 27.

The flies were very abundant wherever present, but no injury to the wheat could be positively traced to them. The fields most badly infested gave no signs of unusual injury. The larvæ of the Bibionid family are known to feed on the roots of various plants. The flies disappeared suddenly and simultaneously. With the *Bibios*, several Anthomyid species appeared in lesser numbers. *Sciara* sp. (?) was sent in from several fields with the *Bibios*.